

CLAIMS

WHAT IS CLAIMED:

1 1. A method for reconfiguring a signal path in a computing system including a
2 plurality of system domains, the method comprising:

3 detecting a predetermined condition triggering a reconfiguration of the computing
4 system;

5 reconfiguring a signal path affected by the condition from a first mode to a second
6 mode responsive to detecting the condition;

7 leaving the unaffected system domains configured in the first mode; and

8 operating the affected system domains in the second mode and the unaffected system
9 domains in the first mode.

1 2. The method of claim 1, wherein detecting the failure includes detecting an
2 interconnect failure.

1 3. The method of claim 1, wherein the computing system includes at least one
2 system control board and wherein detecting the failure includes detecting the failure from the
3 system control board.

1 4. The method of claim 1, wherein detecting the failure includes detecting the
2 failure from the affected system domain.

1 5. The method of claim 4, wherein the computing system includes at least one
2 system control board and the method further comprises notifying the system control board of
3 the error from the affected system domain.

1 6. The method of claim 1, wherein detecting the failure includes detecting the
2 failure during first operations.

1 7. The method of claim 1, wherein detecting the failure includes detecting the
2 failure upon reset.

1 8. The method of claim 1, wherein configuring the affected system domains
2 includes:

3 configuring a first switch in a first affected domain defining a first end of the affected
4 signal path from the first to the second mode;

5 configuring a crossbar switch defining a second end for the affected signal path from
6 the first mode to the second mode.

1 9. The method of claim 1, wherein the computing system includes a system
2 control board and configuring the affected system domains includes configuring the system
3 domains from the system control board.

1 10. The method of claim 1, wherein:
2 operating the unaffected system domains in the first mode includes separating a
3 plurality of information in each transaction into two messages and transmitting
4 the two messages in parallel, each on a respective half of the signal paths; and
5 operating the affected system domains in the second mode includes transmitting the
6 messages in series on a single half of the affected signal path.

1 11. The method of claim 1, wherein:
2 operating the unaffected system domains in the first mode includes separating a
3 plurality of information in each transaction into two messages and transmitting
4 the two messages in parallel in a predetermined number of cycles; and
5 operating the affected system domains in the first mode includes transmitting a
6 plurality of information in each transaction in a single message in twice the
7 predetermined number of cycles.

1 12. The method of claim 1, further comprising at least one of:
2 defining the system domains;
3 pausing operations after detecting the failure but before reconfiguring the affected
4 system domain; and
5 resetting the computing system after detecting the failure but before reconfiguring the
6 affected system domain.

1 13. The method of claim 1, wherein dynamically reconfiguring a signal path
2 affected by the condition from a first mode to a second mode includes dynamically
3 reconfiguring the signal path affected condition from a normal mode to a degraded mode.

1 14. The method of claim 1, wherein dynamically reconfiguring a signal path
2 affected by the condition from a first mode to a second mode includes dynamically
3 reconfiguring the signal path affected condition from a degraded mode to a normal mode.

1 15. A method for reconfiguring a signal path in a computing system including a
2 plurality of system domains, the method consisting essentially of:
3 detecting a condition triggering a reconfiguration of the computing system; and
4 reconfiguring a signal path affected by the condition from a first mode to a second
5 mode responsive to detecting the condition; and
6 operating the affected system domains in the second mode and the unaffected system
7 domains in the first mode.

1 16. A method for reconfiguring a signal path in a computing system including a
2 plurality of system domains, the method comprising:
3 detecting a condition triggering a reconfiguration of the computing system; and
4 reconfiguring a signal path affected by the condition from a first mode to a second
5 mode responsive to detecting the condition;
6 operating the affected system domains in the second mode and the unaffected system
7 domains in the first mode.

1 17. A computing system, comprising:
2 a plurality of system domains;
3 a centerplane interconnecting the system domains;
4 a system controller capable of detecting a condition triggering a reconfiguration and
5 reconfiguring a signal path affected by the condition from a first mode to a
6 second mode.

1 18. The computing system of claim 17, wherein the system domains are
2 dynamically configured.

1 19. The computing system of claim 17, wherein each system domain includes:
2 a system board;
3 an expansion board; and
4 an I/O board.

1 20. The computing system of claim 19, wherein the system board, expansion
2 board, and I/O board comprise a system board set.

1 21. The computing system of claim 17, wherein the centerplane comprises a
2 plurality of crossbar switches interconnecting the system domains.

1 22. The computing system of claim 21, wherein the plurality of crossbar switches
2 includes:

- 3 a data crossbar switch;
4 an address crossbar switch; and
5 a response crossbar switch.

1 23. A computing system, comprising:
2 a plurality of system domains;
3 a plurality of signal paths among the system domains; and
4 a system controller capable of condition triggering a reconfiguration and dynamically
5 reconfiguring a signal path affected by the condition from a first mode to a
6 second mode.

1 24. The computing system of claim 23, wherein the system domains are
2 dynamically configured.

1 25. The computing system of claim 23, wherein each system domain includes:
2 a system board;
3 an expansion board; and
4 an I/O board.

1 26. The computing system of claim 25, wherein the system board, expansion
2 board, and I/O board comprise a system board set.

1 27. The computing system of claim 23, wherein the centerplane comprises a
2 plurality of crossbar switches interconnecting the system domains.

1 28. The computing system of claim 27, wherein the plurality of crossbar switches
2 includes:

- 3 a data crossbar switch;
4 an address crossbar switch; and
5 a response crossbar switch.

1 29. The computing system of claim 23, wherein the plurality of signal paths
2 includes:

- 3 a plurality of data signal paths;
4 a plurality of address signal paths; and
5 a plurality of response signal paths.

1 30. The computing system of claim 23, wherein each signal path comprises:
2 a first half capable of transmitting a first message containing a first portion of the
3 information in a given transaction in the normal mode; and
4 a second half capable of transmitting a second message containing a second portion of
5 the information in the transaction in the normal mode.

1 31. The computing system of claim 30, wherein both the first and second halves
2 are capable of transmitting a single message containing both the first and second portions in
3 the degraded mode.

1 32. The computing system of claim 23, wherein each signal path terminates at a
2 first end in a first one of the system domains, routes through a crossbar switch, and terminates
3 at a second end in a second one of the system domains.

1 33. The computing system of claim 32, wherein the system domains and the signal
2 paths are configurable by configuring the first end, the second end, and the crossbar switch.

1 34. A computing system, comprising:
2 a system controller;
3 a plurality of system domains;
4 at least one crossbar switch interconnecting the system domains;
5 a plurality of signal paths, each signal path terminating at a first end in a first one of
6 the system domains, routing through the crossbar switch, and terminating at a
7 second end in a second one of the system domains; and
8 a console connection over which the system controller can, responsive to a condition
9 triggering a reconfiguration, reconfigure a plurality of the system domains
10 affected by the condition and the crossbar switch to operate the affected signal
11 paths in a first mode while the signal paths domains unaffected by the failure
12 operate in a second mode.

1 35. A computing system, comprising:
2 a plurality of system boards from which a plurality of system domains can be defined;
3 a centerplane including at least one crossbar switch interconnecting the system
4 domains to provide a plurality of signal paths among the system boards; and
5 a system control board hosting a system controller capable of defining the system
6 domains, configuring the system domains and the crossbar switch to operate
7 the signal paths in a first mode, and, responsive to a condition triggering a
8 reconfiguration, reconfiguring the affected system domains and the crossbar
9 switch to operate the affected signal paths in a second mode while the
10 unaffected signals paths operate in the first mode.